IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A packet communication system comprising:

at least two full-mesh wavelength-division-multiplexing transmission units, each of which includes n number of interfaces, the full-mesh wavelength-division-multiplexing transmission units capable of establishing a bidirectional full-mesh communication between all of the interfaces using a wavelength path based on a wavelength-division-multiplexing technique, where n is an integer equal to or greater than 3;

a plurality of edge-packet transfer units, each of which includes at least a packet recognizing unit, an external-packet transmitting/receiving unit, and an internal-packet transmitting/receiving unit, and is connected to the interface of one of the full-mesh wavelength-division-multiplexing transmission units by the internal-packet transmitting/receiving unit; and

an internetwork connection unit that includes at least a packet recognizing unit and a packet transmitting/receiving unit, and connects the full-mesh wavelength-division-multiplexing transmission units in a multistage tree-shaped structure through the plurality of edge-packet transfer units, the internetwork connection unit being connected between two of the plurality of edge-packet transfer units, wherein

one of the two of the plurality of edge-packet transfer units is connected at an upper-stage of the internetwork connection unit, and the other one of the two of the plurality of edge-packet transfer units is connected at a lower-stage of the internetwork connection unit,

both the packet recognizing units of the plurality of edge-packet transfer units and the packet recognizing unit of the internetwork connection unit identify a next-destination edge-packet transfer unit that is a next destination of a received packet from a header of the received packet,

[[the]] an external-packet transmitting/receiving unit of a first specific edge-packet transfer unit from the plurality of edge-packet transfer units inputs a first packet received from a user terminal outside of the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit to [[the]] an internal-packet transmitting/receiving unit of the first specific edge-packet transfer unit, and transmits a second packet output from the internal-packet transmitting/receiving unit of the first specific edge-packet transfer unit to the outside of the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit when the next destination of the second packet identified by [[the]] a packet recognizing unit of the first specific edge-packet transfer unit is [[the]] an edge-packet transfer unit that is not connected to [[the]] one of the full-mesh wavelength-division-multiplexing transmission units,

the internal-packet transmitting/receiving unit of the first specific edge-packet transfer unit outputs the second packet input from [[the]] one of the full-mesh wavelength-division-multiplexing transmission units to the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit when the next destination of the second packet identified by the packet recognizing unit of the first specific edge-packet transfer unit is the edge-packet transfer unit of its own or the edge-packet transfer unit that is not connected to the one of the full-mesh wavelength-division-multiplexing transmission units, transmits the second packet to the external-packet transmitting/receiving unit, and transmits the first packet input from the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit to the wavelength path, which corresponds to the next destination edge-packet transfer unit, of one of the full-mesh wavelength-division-multiplexing transmission units, if the next destination of the first packet identified by the packet recognizing unit of the first specific edge-packet transfer unit is another edge-packet transfer unit connected to the one of the full-mesh wavelength-division-multiplexing transmission units, and

the packet transmitting/receiving unit of the internetwork connection unit transmits each packet received from the first specific edge-packet transfer unit to the next destination edge-packet transfer unit that is the next destination of [[the]] each received packet identified by the packet recognizing unit of the internetwork connection unit.

Claim 2 (Currently Amended): The packet communication system according to claim 1, wherein

each of the full-mesh wavelength-division-multiplexing transmission units ~~include~~ includes physically-independent plural full-mesh wavelength-division-multiplexing transmission units arranged in parallel,

the plurality of edge-packet units includes ~~the edge-packet transfer unit includes~~

a first type of edge-packet transfer unit connected to one of the full-mesh wavelength-division-multiplexing transmission units and the internetwork connection unit[[;]], and

a second type of edge-packet transfer unit connected to all of the full-mesh wavelength-division-multiplexing transmission units,

the internetwork connection unit includes a switching unit that is provided on an input side of the packet transmitting/receiving unit and switches over destinations of a plurality of packets received from a plurality of first type of edge-packet transfer units connected to one of the full-mesh wavelength-division-multiplexing transmission units~~, respectively,~~ to determine a plurality of other first type of edge-packet transfer units connected to ~~a plurality of~~ the other full-mesh wavelength-division-multiplexing transmission units that are the destinations of the plurality of packets received from the plurality of first type of edge-packet transfer units connected to the one of the full-mesh wavelength-division-multiplexing transmission units, and

the internal-packet transmitting/receiving unit of the second type of edge-packet transfer unit transmits the first packet input from the external-packet transmitting/receiving unit simultaneously to same-wavelength paths of the full-mesh wavelength-division-multiplexing transmission units corresponding to the first type of edge-packet transfer unit or the second type of edge-packet transfer unit that is the next destination of the first packet identified by [[the]] a packet recognizing unit of the second type of edge-packet transfer unit, if the next destination of the first packet identified by the packet recognizing unit of the second type of edge-packet transfer unit is another first type of edge-packet transfer unit or another second type of edge-packet transfer unit connected to the full-mesh wavelength division multiplexing units, transmits a plurality of packets input from the same-wavelength paths of the full-mesh wavelength-division-multiplexing transmission units simultaneously to the same-wavelength paths of the full-mesh wavelength division multiplexing units corresponding to the other first type of edge-packet transfer unit or the other second type of edge-packet transfer unit, and if the next destination of the packet identified by the packet recognizing unit of the second type of edge-packet transfer unit is the second type of edge-packet transfer unit itself or the first type of edge-packet transfer unit or second type of edge-packet transfer unit that is not connected to the full-mesh wavelength division multiplexing units, selects one of the packets, and transmits the selected packet to the external-packet transmitting/receiving unit.

Claim 3 (Currently Amended): The packet communication system according to claim 2, wherein

the internetwork connection unit includes an important communication processing unit that extracts and compares important communication packets ~~from the packets~~ received from the first type of edge-packet transfer units connected to the wavelength division

multiplexing transmission units, respectively, and if there is a packet loss in one packet, copies another packet corresponding to the one packet.

Claim 4 (Currently Amended): The packet communication system according to claim 1, wherein

~~the edge-packet transfer unit includes~~

[[a]] the packet recognizing unit [[that]] of the first specific edge-packet transfer unit identifies the edge-packet transfer unit that is the next destination of the first packet and a service from a header of the first packet[[;]], and

each of the plurality of edge-packet transfer units includes a packet processing unit,

[[that]] a packet processing unit of the first specific edge-packet transfer unit processes the first packet received from the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit into a packet form for a communication method used by one of the full-mesh wavelength-division-multiplexing transmission [[unit]] units to which the first specific edge-packet transfer unit is connected if a communication method corresponding to the service identified by the packet recognizing unit of the first specific edge-packet transfer unit differs from the communication method used by the full-mesh wavelength-division-multiplexing transmission unit to which the first specific edge-packet transfer unit is connected, and processes the second packet input from the full-mesh wavelength-division-multiplexing transmission unit to which the first specific edge-packet transfer unit is connected to the internal-packet transmitting/receiving unit of the first specific edge-packet transfer unit and output to the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit into [[the]] a packet form for [[the]] a communication method corresponding to the service identified by the packet recognizing unit of the first specific edge-packet transfer unit if the communication method corresponding to the service

differs from the communication method used by the full-mesh wavelength division multiplexing unit to which the first specific edge-packet transfer unit is connected.

Claim 5 (Currently Amended): The packet communication system according to claim 4, further comprising:

a gateway unit that connects a second specific edge-packet transfer unit from the plurality of edge-packet transfer units and an external network, wherein

[[the]] a packet processing unit of the second specific edge-packet transfer unit processes [[the]] a packet output to [[the]] an external-packet transmitting/receiving unit of the second specific edge-packet transfer unit into the packet form for [[the]] a communication method corresponding to [[the]] a service identified by [[the]] a packet recognizing unit of the second specific edge-packet transfer unit if the service is a service for connecting the second specific edge-packet transfer unit and the external network, and

the external-packet transmitting/receiving unit of the second specific edge-packet transfer unit transmits the processed packet to the gateway unit corresponding to the external network.

Claim 6 (Currently Amended): The packet communication system according to claim 1, wherein

each of the edge-packet transfer [[unit]] units from the plurality of edge-packet transfer units includes

a resource management unit that manages resource states of all of the wavelength paths relating to an interface to which the edge-packet transfer unit of each of the full-mesh wavelength-division-multiplexing transmission units is connected[[;]], and

a resource-information transfer unit that transfers information on the resource states as a packet.

Claim 7 (Currently Amended): The packet communication system according to claim 6, wherein

when transmitting the first packet input from the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit or one of the full-mesh wavelength division multiplexing [[unit]] units, the next destination of which identified by the packet recognizing unit of the first specific edge-packet transfer unit is the other edge-packet transfer unit connected to the other of the full-mesh wavelength-division-multiplexing transmission [[unit]] units, to the wavelength path of the full-mesh wavelength-division-multiplexing transmission unit corresponding to the other edge-packet transfer unit, the internal-packet transmitting/receiving unit of the first specific edge-packet transfer unit transmits the first packet to another wavelength path if [[the]] a resource state of the wavelength path is determined to be equal to or higher than a threshold based on resource state information on the wavelength path managed by [[the]] a resource management unit of the first specific edge-packet transfer unit.

Claim 8 (Currently Amended): The packet communication system according to claim 6, wherein

in a communication for exercising a call admission control by transmitting a call control packet of a call request or a call response to a control server that includes a call-admission control unit, the external-packet transmitting/receiving unit or the internal-packet transmitting/receiving unit of the first specific edge-packet transfer unit adds resource state information managed by [[the]] a resource management unit of the first specific edge-packet transfer unit to the call control packet when a type of the first or second packet identified by the packet recognizing unit of the first specific edge-packet transfer unit is the call control packet.

Claim 9 (Currently Amended): A packet communication method using

at least two full-mesh wavelength-division-multiplexing transmission units, each of which includes n number of interfaces, and is capable of establishing a bidirectional full-mesh communication between all of the interfaces using a wavelength path based on a wavelength-division-multiplexing technique, where n is an integer equal to or greater than 3;

a plurality of edge-packet transfer units, each of which includes at least a packet recognizing unit, an external-packet transmitting/receiving unit, and an internal-packet transmitting/receiving unit, and is connected to the interface of one of the full-mesh wavelength-division-multiplexing transmission by the internal-packet transmitting/receiving unit; and

an internetwork connection unit that is connected to one of the edge-packet transfer units, the internetwork connection unit including at least a packet recognizing unit and a packet transmitting/receiving unit, and connects the full-mesh wavelength-division-multiplexing transmission units in a multistage tree-shaped structure through the plurality of edge-packet transfer units, the internetwork connection unit being connected between two of the plurality of edge-packet transfer units, wherein one of the two of the plurality of edge-packet transfer units is connected at an upper-stage of the internetwork connection unit by the external-packet transmitting/receiving unit thereof, and the other one of the two of the plurality of edge-packet transfer units is connected at a lower-stage of the internetwork connection unit by the external-packet transmitting/receiving unit thereof, the packet communication method comprising:

a first step of transmitting a packet including

[[the]] a packet recognizing ~~units~~ unit of a first specific edge-packet transfer unit from the plurality of edge-packet transfer units identifying a next-destination edge-packet transfer unit that is a next destination of [[a]] the packet from a header of the packet

with respect to [[a]] the packet received by [[the]] an external-packet transmitting/receiving unit of the first specific edge-packet transfer unit; and

[[the]] an internal-packet transmitting/receiving unit of the first specific ~~one of the~~ edge-packet transfer [[units]]unit transmitting the packet to the wavelength path, which corresponds to the next destination edge-packet transfer unit, of [[the]] one of the full-mesh wavelength-division-multiplexing transmission [[unit]]units corresponding to the next destination of the packet, if the next destination of the packet identified by the packet recognizing unit of the first specific edge-packet transfer unit is another edge-packet transfer unit connected to the one of the full-mesh wavelength-division-multiplexing transmission units; and

a second step of transmitting [[a]] the packet including

the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit transmitting the packet to the internetwork connection unit, when the next-destination of the packet identified by the packet recognizing unit of the first specific edge-packet transfer unit is the edge-packet transfer unit that is not connected to the one of the full-mesh wavelength-division-multiplexing transmission units;

the packet recognizing unit of the internetwork connection unit identifying the next-destination edge-packet transfer unit that is a next destination of [[a]] the packet from [[a]] the header of the packet, and the internetwork connection unit transmitting the packet to the next-destination edge-packet transfer unit corresponding to the next destination of the packet; and

repeating the first step of packet transmitting and the second step of packet transmitting until the packet is output from the next-destination edge-packet transfer unit corresponding to a final destination of the packet.

Claim 10 (Currently Amended): The packet communication method according to claim 9, wherein

each of the full-mesh wavelength-division-multiplexing transmission units ~~include~~ includes physically-independent plural full-mesh wavelength-division-multiplexing transmission units arranged in parallel,

the plurality of edge-packet transfer [[unit]] units includes

a first type of edge-packet transfer unit connected to one of the full-mesh wavelength-division-multiplexing transmission units and the internetwork connection unit; and

a second type of edge-packet transfer unit connected to all of the full-mesh wavelength-division-multiplexing transmission units,

the internetwork connection unit includes a switching unit that is provided on an input side of the packet transmitting/receiving unit of the internetwork connection unit and switches over destinations of a plurality of packets received from a plurality of first type of edge-packet transfer units connected to one of the full-mesh wavelength-division-multiplexing transmission units~~, respectively,~~ to determine a plurality of other first type of edge-packet transfer units connected to ~~a plurality of~~ the other full-mesh wavelength-division-multiplexing transmission units that are the destinations of the plurality of packets, and

the packet communication method further comprises:

a third step of transmitting [[a]] the packet including

the internal-packet transmitting/receiving unit of the second type of edge-packet transfer unit transmitting the packet input from [[the]] an external-packet transmitting/receiving unit of the second type of edge-packet transfer unit simultaneously to same wavelength paths of [[the]] a plurality of parallel full-mesh wavelength-division-multiplexing transmission units;

the internetwork connection unit selecting a packet to be transmitted by changing a communication configuration between the full-mesh wavelength-division-multiplexing transmission units according to the switching unit of the internetwork connection unit switching over paths from the first type of edge-packet transfer units to the other first type of edge transfer units that are the destinations of the packet; and

performing a redundant packet communication by the internal-packet transmitting/receiving unit of the second type of edge-packet transfer unit corresponding to the destination of the ~~packet selecting a~~ the selected packet received from the full-mesh wavelength-division-multiplexing transmission units and transmitting the selected packet.

Claim 11 (Currently Amended): The packet communication method according to claim 10, wherein

the internetwork connection unit includes an important communication processing unit, and

the packet communication method further comprises:

the important communication processing unit extracting and comparing important communication packets from the packets received from the first type of edge transfer units connected to the wavelength division multiplexing transmission units, respectively; and

performing the redundant packet communication by copying, if there is a packet loss in one packet, another packet corresponding to the one packet.

Claim 12 (Currently Amended): The packet communication method according to claim 9, wherein

[[the]] each edge-packet transfer unit from the plurality of edge-transfer units includes a packet processing unit, and

the packet communication method further comprises:

performing a packet communication, in which plural services are overlapped, by [[the]] a packet processing unit of the first specific edge-packet transfer unit processing the packet received from the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit into a packet form for a communication method used by the full-mesh wavelength-division-multiplexing transmission unit if a communication method corresponding to [[the]] a service identified by the packet recognizing unit of the first specific edge-packet transfer unit differs from the communication method used by the full-mesh wavelength-division-multiplexing transmission unit, and processing the packet input from the full-mesh wavelength-division-multiplexing transmission unit to the internal-packet transmitting/receiving unit of the first specific edge-packet transfer unit and output to the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit into [[the]] a packet form for [[the]] a communication method corresponding to the service identified by the packet recognizing unit of the first edge-packet transfer unit if the communication method corresponding to the service differs from the communication method used by the full-mesh wavelength division multiplexing unit.

Claim 13 (Currently Amended): The packet communication method according to claim 12, wherein

the packet communication method further uses a gateway unit that connects a second specific edge-packet transfer unit from the plurality of edge-packet transfer units and an external network, and

the packet communication method further comprises:

[[the]] a packet processing unit of the second specific edge-packet transfer unit processing [[the]] a packet output to [[the]] an external-packet transmitting/receiving unit of the second specific edge-packet transfer unit into the packet form for the communication method corresponding to [[the]] a service identified by the packet recognizing unit of the second specific edge-packet transfer unit if the service is a service for connecting the second specific edge-packet transfer unit and the external network; and

the external-packet transmitting/receiving unit of the second specific edge-packet transfer unit transmitting the processed packet to the gateway unit corresponding to the external network.

Claim 14 (Currently Amended): The packet communication method according to claim 9, wherein

[[the]] each edge-packet transfer unit from the plurality of edge-packet transfer units includes a resource management unit and a resource-information transfer unit, and

the packet communication method further comprises:

[[the]] a resource management unit of the first specific edge-packet transfer unit managing resource states of all of the wavelength paths related to the interfaces of each of the full-mesh wavelength-division-multiplexing transmission units to which interfaces [[the]] of each of the edge-packet transfer unit is connected; and

[[the]] a resource-information transfer unit of the first specific edge-packet transfer unit transferring information on each of the resource states as a packet.

Claim 15 (Currently Amended): The packet communication method according to claim 14, further comprising:

the internal-packet transmitting/receiving unit of the first specific edge-packet transfer unit transmitting, when transmitting the packet input from the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit or the full-mesh wavelength division multiplexing unit, the destination of which identified by the packet recognizing unit of the first specific edge-packet transfer unit is the other edge-packet transfer unit connected to the full-mesh wavelength-division-multiplexing transmission unit, to the wavelength path of the full-mesh wavelength-division-multiplexing transmission unit corresponding to the other edge-packet transfer unit, the packet to another wavelength path if [[the]] a resource state of the wavelength path is determined to be equal to or higher than a threshold based on resource state information on the wavelength path managed by the resource management unit of the first specific edge-packet transfer unit.

Claim 16 (Currently Amended): The packet communication method according to claim 14, further comprising:

the external-packet transmitting/receiving unit or the internal-packet transmitting/receiving unit of the first specific edge-packet transfer unit adding resource state information managed by the resource management unit of the first specific edge-packet transfer unit to a call control packet when a type of the packet identified by the packet recognizing unit of the first specific edge-packet transfer unit is the call control packet, in a communication for exercising a call admission control by transmitting the call control packet of a call request or a call response to a control server that includes a call-admission control unit.

Claim 17 (Currently Amended): The packet communication system according to claim 1, wherein the internal packet transmitting/receiving unit of the first specific edge-packet transfer unit further transmits the packet input from the external-packet

transmitting/receiving unit of the first specific edge-packet transfer unit to a same wavelength path of the full-mesh wavelength-division-multiplexing transmission unit, corresponding to the edge-packet transfer unit that is the next destination of the packet identified by the packet recognizing unit of the first specific edge-packet transfer unit, the next destination of the packet not being a final destination of the packet, and

an information of the packet identified by the packet recognizing unit of the first specific edge-packet transfer unit including a destination address and a packet type.

Claim 18 (Currently Amended): The packet communication method according to claim 9, wherein said step of first transmitting further comprises:

the internal packet transmitting/receiving unit of the first specific edge-packet transfer unit transmits the packet input from the external-packet transmitting/receiving unit of the first specific edge-packet transfer unit to a same wavelength path of the optical network of the full-mesh wavelength-division-multiplexing transmission unit, corresponding to the edge-packet transfer unit that is the next destination of the packet identified by the packet recognizing unit, the next destination of the packet not being a final destination of the packet, and an information of the packet identified by the packet recognizing unit of the first specific edge-packet transfer unit including a destination address and a packet type.